

Claims

1. An image display apparatus comprising:
 - an illumination optical system having a light source;
 - a plurality of spatial light modulation elements each having reflecting electrodes;
 - polarization elements corresponding to the plural spatial light modulation elements;
 - a color separation/composition element for color-separating illumination light from the illumination optical system into transmission light and reflection light to direct thus generated transmission light and reflection light to the respective spatial light modulation elements via the corresponding polarization elements and for compositing reflection lights from the spatial light modulation elements, the color separation/composition element having reflection planes laid obliquely against the illumination light where the illumination light is color-separated and the reflection lights are composited;
 - a projection optical system for projecting composited light outgoing from the color separation/composition element to display an image of the respective spatial light modulation elements; and
 - a polarization change means for, of the illumination light, causing light of wavelength band which is supposed to pass through the reflection planes of the color separation/composition element to be of P-polarized light toward the

reflection planes and causing light of wavelength band which is supposed to be reflected by the reflection planes of the color separation/composition element to be of S-polarized light toward the reflection planes, the polarization change means being disposed on an optical path between the illumination optical system and the color separation/composition element.

2. The image display apparatus according to claim 1, wherein

the polarization change means is a retarder stack which, of the illumination light, rotates only polarization direction of light of wavelength band which is supposed to pass through the reflection planes of the color separation/composition element to cause the light to be of P-polarized light toward the reflection planes.

3. The image display apparatus according to claim 1, wherein

transmission axes of the respective polarization elements are rotated against polarization directions of the illumination lights outgoing from the color separation/composition element to the respective polarization elements so as to adjust white balance of a display image.

4. An image display apparatus comprising:

an illumination optical system having a light source;

a plurality of spatial light modulation elements each having reflecting electrodes;

polarization elements corresponding to the plural spatial light modulation elements;

a color separation/composition element for color-separating illumination light from the illumination optical system into transmission light and reflection light to direct thus generated transmission light and reflection light to the respective spatial light modulation elements via the corresponding polarization elements and for compositing reflection lights from the spatial light modulation elements, the color separation/composition element having reflection planes laid obliquely against the illumination light where the illumination light is color-separated and the reflection lights are composited;

a projection optical system for projecting composited light outgoing from the color separation/composition element to display an image of the respective spatial light modulation elements;

a first polarization change means for, of the illumination light, causing light of wavelength band which is supposed to pass through the reflection planes of the color separation/composition element to be of P-polarized light toward the reflection planes and causing light of wavelength band which is supposed to be reflected by the reflection planes of the color separation/composition element to be of S-polarized light toward the reflection planes, the first polarization change means being disposed on an optical path between the illumination optical system and the color separation/composition element; and

a second polarization change means for, of the illumination light, rotating polarization direction of light of wavelength band which is supposed to be blocked

by the polarization element, the second polarization change means being disposed on an optical path between the color separation/composition element and the polarization element corresponding to the spatial light modulation element.

5. The image display apparatus according to claim 4, wherein

the second polarization change means is a retarder stack which, of the illumination light, rotates only polarization direction of light of wavelength band which is supposed to be blocked by the polarization element.

6. The image display apparatus according to claim 4, wherein

transmission axes of the respective polarization elements are rotated against polarization directions of the illumination lights outgoing from the color separation/composition element to the respective polarization elements so as to adjust white balance of a display image.